Office of Force Transformation
Department of Defense
Transformation Trends
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"Tight budgets, like war, concentrate the mind, force one to rethink priorities, and to make necessary changes that otherwise would be considered too controversial."

Donald Rumsfeld, Secretary of Defense

TRANSFORMATION'S TRAJECTORY

Art Cebrowski, former director,
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In my travels and discussions with people, I am repeatedly asked several questions. First, what is the direction of transformation and what is its future? Another is how enduring is transformation? My basic response is that the President and the Secretary of Defense have been now talking about transformation for more than four years now and are likely to keep talking about it for another four years. By Washington standards eight years is really quite a long time. If you put something in place and make it work for eight years the concrete is usually set.

But back to the question of where is transformation going? Transformation and its advances are going to be with the Department of Defense for a very, very long time. It would be very difficult to undo some of the things that have been put into place—changes in the Unified Command Plan; changes in management procedures and processes have either been rewritten or legislatively changed. Changes of this magnitude are unlikely to be summarily changed.

In addition, there are certain compelling attributes of transformation that will continue forward. The US military is not going to step backward to a less networked age. That is simply not going to happen. The US Army is not going to suddenly announce a need for open field maneuver with divisions, lined up shoulder to shoulder, mounting an armored campaign. That is just not an argument worth making anymore. The US Navy is not going to go back away from the startling advances it has made in strike warfare and retreat to a blue water focus. That is the direction of transformation.

Another trend underway is that, through ongoing operations in Afghanistan and Iraq, the US military is generating a significant pool of junior and mid-grade officers and NCO's, who have experienced combat. This changes the force. They have experienced many transformational events. These changes

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come in the form of how they are organized, their reach for new or different tactics and the types of equipment with which they are supplied.

These are the cadres whose experiences will be captured and injected back into the training of forces who have yet to deploy. When the military operates at a high RPM level, it means lessons are being learned very fast and doctrine is forced to play catch up. Doctrine, in the form of the glossy brochure, becomes a matter of history, and real doctrine emerges from what the forces are actually doing on the battlefield. With an increasingly larger fraction of the officer corps obtaining combat experience you are not going to have any back tracking on transformation.

These trends put to rest, I think, any discussion over whether transformation is likely to continue or not. That does not mean, however, that transformation will not change direction or emphasis. We have seen this over the last four years. Many defense intellectuals thought transformation was initially only about canceling big ticket weapons programs and firing the odd recalcitrant general or admiral. That is really not what transformation is all about. It is largely about behavioral change and it contains profound organizational and process dimensions--which are major drivers of transformation.

Defense Economics for the Age of Globalization

I propose yet another dimension to the direction of transformation, but first a little history. In 1963, Charles Hitch and Roland McKean published "The Economics of Defense in the Nuclear Age." This was a landmark book. It led to the development of the Pentagon's Planning Programming and Budgeting System (PPBS) and the rise of systems analysis. In that era, this was time, money and intellectual talent well spent. It provided a certain robustness and depth in capability that was very important.

Hitch and McKean's work however is rooted in that time. . Their study was defense economics for the nuclear age. It was based in the nuclear paradigm of the day and an intellectualization born in the 1950s. Today, our view of nuclear war has matured or at least evolved. That book is no longer relevant in terms of how to deal with the weapons of mass destruction phenomenon, which is the characteristic of the age today. The context is stunningly different.

The thinking of Hitch and McKean also gave the department business models from the 1950s. What business schools teach today is decidedly different from what was taught in that era. The authors also provided decision rules—ways to think about quantitative methods—the rules that underlie cost benefit analysis. People have forgotten the book, but became so enamored with the processes; that the department lost sight of the first principles.

Today, the department still has this legacy overhanging its processes based on these earlier business rules. What the department requires today is a new book. We need "The Economics of Defense in the Age of Globalization." That book must be written by people who are just as dedicated and just as smart as Hitch and McKean were.

The need for a new approach is clearly evident if we look at current trends and the movement away from the traditional battlefield to what is called irregular and catastrophic warfare. This is different. The traditional battlefield tends to be highly technical and capital intensive whereas the irregular is somewhat more labor intensive. This necessitates some kind of shift.

We are fond of saying that this shift is occurring because of the US military's tremendous prowess on the traditional battlefield. Enemies do not want to face such a formidable force so they vacate the field. But, US military power, of course, is supported by US economic power. Where have our enemies gone? They have retreated to the social and political domains—the terrain that German strategist Karl von Clausewitz predicted any enemy under threat would retreat to—the more complex terrain of the political and social domains. Warfare only ends when one side quits, not when you shift domains because the war ends. Our enemies have moved into the social and political domains as a response to US economic power.

We need to be thinking of defense in these kinds of economic terms and start making decisions based on that reasoning, from both cost avoidance and cost imposing perspectives.

Strategic Approach to Cost

There are several US responses to this development. The first is the substitution of labor for capital as the department emphasizes different systems for a somewhat different battlefield. We can do this, but at the same time it must be nuanced, since if the decision is to field an infantry heavy force then the premium on supporting fires and air superiority tend to rise in importance. Yet, the department cannot simply walk away from these capabilities if the decision is to become a more labor-intensive military.

We also need to deal with disruptive threats. These are disruptive features where potential enemies can suddenly negate current US superiorities, not just on the traditional battlefield, but also in the irregular battlefield as well. This requires a need to see ahead. If you argue this in DoD or congressional terms we are talking about the total amount of money being invested in research and development. There is a world of difference between managing R&D by establishing a top line and managing R&D by establishing a strategic focus—a rule set—under which R&D can be subordinated. In the first method you get waste and delusion, and only in the second method do you have the hope of progress.

R&D is really quite nuanced. There is a texture to it. How much money are you going to allocate to reinforce decisions already made in the past? For example, if you decide you are going to do a Joint Strike Fighter and it develops a problem in development you may have to put some significant money against it. This is money that has to come from somewhere else in the R&D accounts. Perhaps by cutting money earmarked for university research? Possibly by reducing funding for defense labs. More importantly, however, what is being shortchanged is the process of discovery and invention. As the department moves into a period of uncertainty, discovery and invention are increasingly important.

The department must look at the economics of R&D from a strategic point of view. The great power of America is really our human capital—our brainpower. Historically, when money is moved into certain research areas, there is a mirror image movement in the percentage of PHD candidates in those areas of emphasis. It is an indication of the strategic power of R&D. But, if the department is spending a disproportionate share of precious R&D by shoring up decisions previously made, we are losing some of that strategic power. In times of uncertainty, especially, this is what is going to ultimately give us the breadth of development to make decisions on relatively short timelines.

For example, if we were to look at the timelines for different IT components, IT software, communications systems, we can identify development times and acquisition times ranging from six

months to three years. One of the reasons we see this is because there is a very robust ongoing technical process in America so these capabilities are available to be cashed in on very short timelines.

However, there is a coupling that is required between information systems and physical systems such are propulsion, energetics, and sensing. Here the timelines run from three to five years for relatively simple sensor applications, and up to 20 to 40 years for other needs that DoD has.

But today we are entering an historic period of opportunity where the timelines for other systems like structural materials, propulsion, fuels, weapons and sensors can be shortened. It can be shortened since a great deal of work has already been accomplished. That research is already behind us and the department is well positioned to cash in, based on prior work. In some areas, IT advancements are aiding in this acceleration. For example, advances in supercomputing allow us to engineer the molecular interfaces of certain compounds and achieve higher energy density. We can do this very much faster than we ever could before in the same way that drug manufacturers can produce a drug more quickly even though the bureaucratic process might take a very long time before you can use it to treat your illness.

There is the rub. We have those same kind of bureaucratic processes operating inside the Department today. We have rule set that says it has to take a long time and consequently we have processes that allow it to take a long time. We have grown comfortable with that, but we should not be. We have a great opportunity to do otherwise.

To counter these bureaucratic tendencies, the department must adopt a strategic approach to cost. We don't have to spend the amount of money that we do. We don't want to pay people for the stand by cost of defense. For example, we will buy one ship out of this yard per year. The cost will be enormous, but the lore is that you are paying for the standby cost of defense, that this industrial plant and the workforce will be there when needed. That is simply not true.

What we need to pay the defense industry for is to shove stuff out the door. Industry should actually like this, since it keeps design teams engaged and it keeps things competitive. Some industrial firms might dispute the competitive point, since they want to be the sole source for whatever product they produce. Where that happens industry will atrophy. Its work force will become untrainable and its physical plant will be inappropriate for department needs. One of the first indications of this is that it will have no foreign market because people will go elsewhere. In essence I have just described the ills belaboring the American shipbuilding industry.

That is an indicator of the consequences that occur when an industry decides to shield itself and others from competition. They are ensuring their own demise. That is a trajectory that we need not be on. That is a choice.

One solution to this dilemma is to suppress entity costs and increase cycle times in terms of procuring new systems. The department attempts to compete on the very best capabilities. I say lets compete on the basis of cost and cycle time. It may be counter intuitive, but in the process capability or performance will actually increase. Because learning comes from increased cycle time. Learning comes out of the generation of options. The department should resist the urge to down select to one company in competitions. We need to have more great design teams functioning instead. As a result, you will have

the force learning more things, industry will be learning more things and we the Congress will be learning more. Learning rate turns out to be a great competitive advantage and allows the department to more forward. Information gets shared more broadly, as we compete on time, and performance will actually go up.

We are steaming at flank speed into a budget tsunami. What I am proposing here is a way to deal with that inevitability. Allowing the department a guiding hand in creating its own future, rather than having that future imposed by someone else.